

# On-Bit, Analog Multiplexer for Transmission of Multi-Channel Drilling Information

## Abstract

The invention includes, in its various aspects and embodiments, a method and apparatus for multiplexing data on-bit in a drilling operation. The apparatus comprises a bit; a plurality of transducers situated on the bit; and an analog multiplexer situated on the on the bit and capable of receiving the output of the transducers, multiplexing the received outputs, and transmitting the multiplexed outputs. The method comprises taking a plurality of measurements of at least one down-hole drilling condition at a bit of a drill string; generating a plurality of analog signals representative of the measurements; and multiplexing the analog signals at the bit.